

Physics 102 – Spring 2014 – Recitation module 11

Stephen Hawking – The big bang (5:39)

<http://www.youtube.com/watch?v=gs-yWMuBNr4>

Why is the name “big bang” misleading?

Before the big bang theory was thrust upon us, most physicists believed in something called the “steady state” universe. http://en.wikipedia.org/wiki/Steady_State_theory If you ignore the scientific evidence and simply look into yourself and ask which of these views of the universe you prefer, what is your answer? Why?

Story of the discovery of the CMB in Stephen Hawking’s Universe (9:10)

http://www.youtube.com/watch?v=-dR26JmmaBM&list=PLM-6C9CD5Bfu1eE0dDNS1XWAQpG9Eqv_u

Fraser Cain, evidence for the big bang (5:27)

https://www.youtube.com/watch?v=xtrYF_hxxUM

Okay ... the way Fraser emphasizes certain words is annoying. Sorry.

What are the four primary lines of evidence that support the idea of the big bang?

Which of these lines of evidence do you find most compelling? Least compelling? Why?

Lawrence Krauss discussing the Planck photo of CMB (1:20 to 9:20)

http://www.youtube.com/watch?v=GudQNNwVe1U&list=PLM-6C9CD5Bfu1eE0dDNS1XWAQpG9Eqv_u

The CMB photo is not uniform. The color/temperatures vary by as much as one part in 10^5 . If you “believe” in the big bang, how is it that we know the CMB cannot be exactly uniform?